CLAIMS

What is claimed is:

1. A method for directly identifying a candidate compound as a compound selected from the group consisting of an inverse agonist, a partial agonist and an agonist, to an endogenous, constitutively active G protein coupled orphan receptor, comprising the steps of:

(a) contacting a candidate compound with GPCR Fusion Protein, said GPCR Fusion Protein comprising an endogenous, constitutively active G protein coupled orphan receptor and a G protein; and

(b) determining, by measurement of the compound efficacy at said contacted receptor, whether said compound is an inverse agonist, a partial agonist or an agonist of said receptor.

2. The method of claim 1 wherein the compound is directly identified as an inverse agonist to said orphan receptor.

3. The method of claim 1 wherein the compound is directly identified as an agonist to said orphan receptor.

4. The method of claim 1 wherein the compound is directly identified as partial agonist to said orphan receptor.

5. A composition comprising a compound identified by the method of claim 2.

6. A composition comprising a compound identified by the method of claim 3.

7. A composition comprising a compound identified by the method of claim 4.

8. The method of claim 1 wherein said orphan receptor is selected from the group consisting of: GPR3, GPR4, GPR6, GPR12, GPR21, OGR1, GHSR, RE2 and ALO22171.

9. The method of claim 1 wherein said orphan receptor is GPR6.

10. The method of claim 1 wherein said G protein is selected from the group consisting of: Gs, Gi, Gq and Go.

11. The method of claim 1 wherein said G protein is Gsα.

12. A method for directly identifying a candidate compound as a compound selected from the group consisting of an inverse agonist, a partial agonist and an agonist, to an endogenous, constitutively active G protein coupled orphan receptor, comprising the steps of:

(a) contacting a candidate compound with GPCR Fusion Protein, said GPCR Fusion Protein comprising an endogenous, constitutively active G protein coupled orphan receptor and a Gsα protein; and

(b) determining, by measurement of the compound efficacy at said contacted receptor, whether said compound is an inverse agonist, a partial agonist or an agonist of said receptor.

13. The method of claim 12 wherein said orphan receptor is selected from the group consisting of: GPR3, GPR4, GPR6, GPR12, GPR21, OGR1, GHSR, RE2 and ALO22171.

14. The method of claim 12 wherein said orphan receptor is GPR6.

15. The method of claim 14 wherein said compound is directly identified as a compound selected from the group consisting of an inverse agonist and an agonist.

16. The method of claim 15 wherein said compound is an inverse agonist.

17. A composition comprising the compound of claim 16.

18. A method for modulating a G protein coupled oprhan receptor comprising the step of contacting said receptor with a compound identified by the method of claim 1.

19. A method for modulating a G protein coupled oprhan receptor comprising contacting said receptor with a compound identified by the method of claim 12.